International Journal of Trend in Scientific Research and Development (IJTSRD)
Special Issue on Advancements and Emerging Trends in Computer Applications - Innovations, Challenges, and Future Prospects
Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

MSSEA: A Mobile-First Approach to Personalized Healthcare and Seamless Medical Consultation

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ABSTRACT

This program has a symptom analyzer that interprets the symptoms entered by the patient and suggests the medicines or the medical professionals against the symptoms. Although it is quite difficult to remember anything in the contemporary world, with the medicine reminder the users do not have to remember the dose of medicines for themselves. Various types of accounts guarantee data security through enabling user access to only such information for which they are privileged, hence data integrity is extremely valuable. This application also encompasses a chat space where patients may see physicians, don't need to queue up in the medical clinic, make payments with wallets, and There is an android application, "Health Care Application," which will render people within reach of the medical assistance through providing them timely and precise solutions. Physicians, patients, medicines, drugs, and medical gadget vendors are all using the application for health care. The 'Health Care Application' idea will give the users all the facilities at any time and place they prefer, due to the widespread use of cell phones. As the world has been technologically advanced today, every problem has to be solved by a speedy, digital method, therefore every crisis need has to be solved in a reachable way. if wished, use health insurance services. The physician may also see medical history and can monitor the patient's health status in real-time.

KEYWORDS: *Cloud Storage, MySQL, Node.js Express.js Java / Spring Boot, Python, Django or Flask, Android Studio.*

I. INTRODUCTION

There is an Android application named "Health Care Application" that helps in alleviating medical situations for the user. The user can register and log in through a Facebook or Google account, a mobile number, or any other email address. The user can be an insurance agent, doctor, patient, or hospital staff member. It has different user interfaces for doctors and patients. Thanks to the Symptom Analyzer in this program, physicians are able to understand their patients' issues better. The applicant of this software can chat and also send files, make video and voice calls, and send files. An applicant can access the SOS option in case of an emergency situation, which features a nearest ambulance locator. Aadhar verification is linked to processes for completing hospital forms and, in case of emergency, filing F.I.R.s online. Through the SOS option, the user can assist another person in distress as well as alert the concerned ambulance authority. The aim is to provide patient safety, availability of all drugs and medical equipment, identification of nearest hospitals, and round-the-clock access to physician consultation, medical advice, and first aid details. Through providing medical attention as early as possible, an e-wallet can enable cashless payment while reducing the rate of death

II. RELATED WORK

The concept of doctor consultation app, a significant component of the overall telemedicine industry, has been studied from various perspectives including technological innovations, consumer habits, regulatory factors, and clinical outcomes. Herein, we encapsulate essential research, advancements, and trends in telemedicine platform development and use, particularly doctor consultation apps, to understand their contribution to healthcare delivery.

➢ Telemedicine and Doctor Consultation App History

Telemedicine, or the distant delivery of health care services, has existed for many decades, but its evolution into the doctor consultation apps of today was accelerated by the growth of the internet, mobile phones, and telecommunication networks.

Early telemedicine platforms had been restricted to phone consultations and basic medical advice, but today's apps provide video consultations, real-time symptom checking, remote diagnosis, and integration with other health technologies such as wearables and electronic health records (EHRs).

➢ Early Research into Telemedicine

Mair, F. S., et al. (2001) targeted the efficacy of telemedicine for use in primary care, discussing cost-effectiveness and efficiency as means of relief from the traditional healthcare burden by way of distant consultations. This study was not app-specific, but it helped pave the ground for realizing benefits in remote health care consultations.

Ryu, S. (2012) evaluated several telemedicine technologies, including the effects of early video consultation platforms in promoting greater access to healthcare, particularly for rural and underserved populations. Ryu's study helped to identify the key advantages of teleconsultations, such as improved access and decreased healthcare delivery expenses.

III. DATA AND SOURCES OF DATA

A Doctor Consultation App gathers and maintains different types of information in order to deliver efficient and secure healthcare services. The primary categories of information are:

- **Patient Information:** Personal (name, age, gender, contact), medical history, symptoms, uploaded reports, and feedback — entered by the user at the time of registration or consultation.
- **Doctor Information**: Credentials, specialties, availability, and consultation fees are some of the professional information entered by providers and authenticated by administrators or certification bodies.

- **Information for consultation and appointment**: contains the time of appointment, history of video calls (if any), diagnosis, prescriptions, and session notes, all generated during consultation.
- **System and Usage Data:** This information, including crash reports, device data, user behavior, and login time, is collected automatically for security and performance.
- **Third-party data:** For the purposes of identity verification (Firebase, Google Auth), video calls (via Zoom or Agora APIs), and potentially insurance or pharmacy integration.

IV. RESEARCH METHODOLOGY

1. Requirements Gathering Primary Research:

Interviews and questionnaires were conducted with patients and healthcare providers to learn about their needs, expectations, and difficulties with existing systems.

Secondary Research: Existing telemedicine platforms, scholarly literature, and healthcare standards (e.g., HIPAA,WHO WHO telehealth guidelines) were reviewed for best practices.

2. System Design and Planning

Modular architecture was designed, with emphasis on user roles (admin, doctor, patient), core features (booking, prescription, video consultation), and data flow.

Wireframes and flowcharts were done so that a visual sense of the user flow and interaction would be gained.

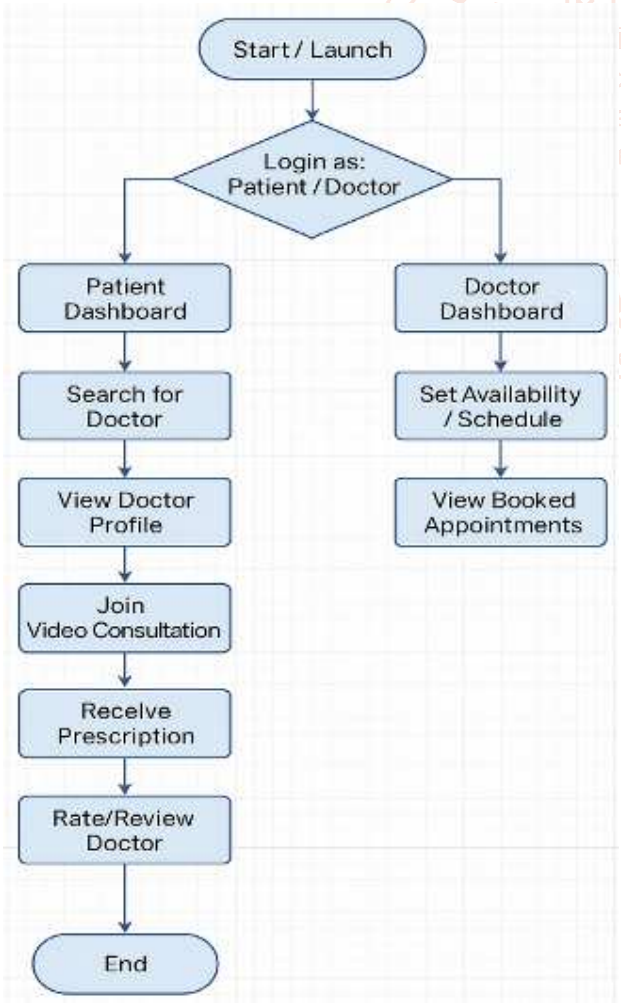

Fig 1: MSSEA APP Flow Chart

The user flowchart illustrates the journey of both patients and doctors in the app:

1. **Start / Launch:** Users open the app.
2. **Registration/Login**: Users sign up or log in.
3. **Role Selection:** User chooses to proceed as a Patient or a Doctor.
4. **Patient Flow:**
   - Searches for doctors by specialty.
   - Views profiles and books appointments.
   - Joins video consultations.
   - Receives prescriptions and gives feedback.
5. **Doctor Flow:**
   - Sets availability.
   - Views and manages appointment requests.
   - Conducts consultations and provides prescriptions.
   - End: Session completes, returning to the dashboard or logging out.

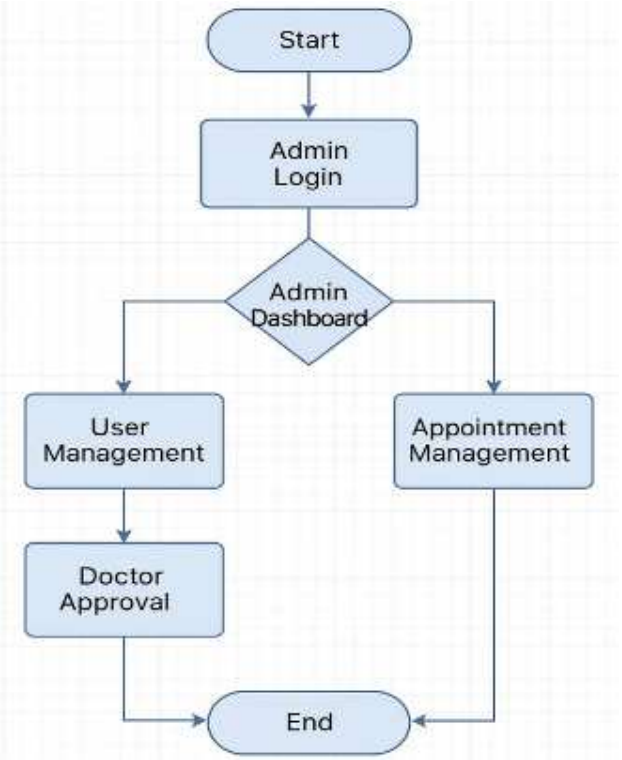

Fig 2: Admin login Flow Chart

The admin flowchart outlines the key tasks handled by the admin user:

1. **Admin Login:** The admin securely logs into the system.
2. **Dashboard Access:** Enters the admin dashboard with full system control.
3. **User Management:** Monitors and manages patient and doctor accounts (e.g., edits, bans, or deletes).
4. **Doctor Verification:** Reviews and approves or rejects doctor registration requests.
5. **Appointment Monitoring:** Tracks all scheduled consultations and system activity.
6. **System Maintenance:** Handles reports, feedback, and ensures smooth platform operation.
7. **Logout/Exit:** Ends the session.

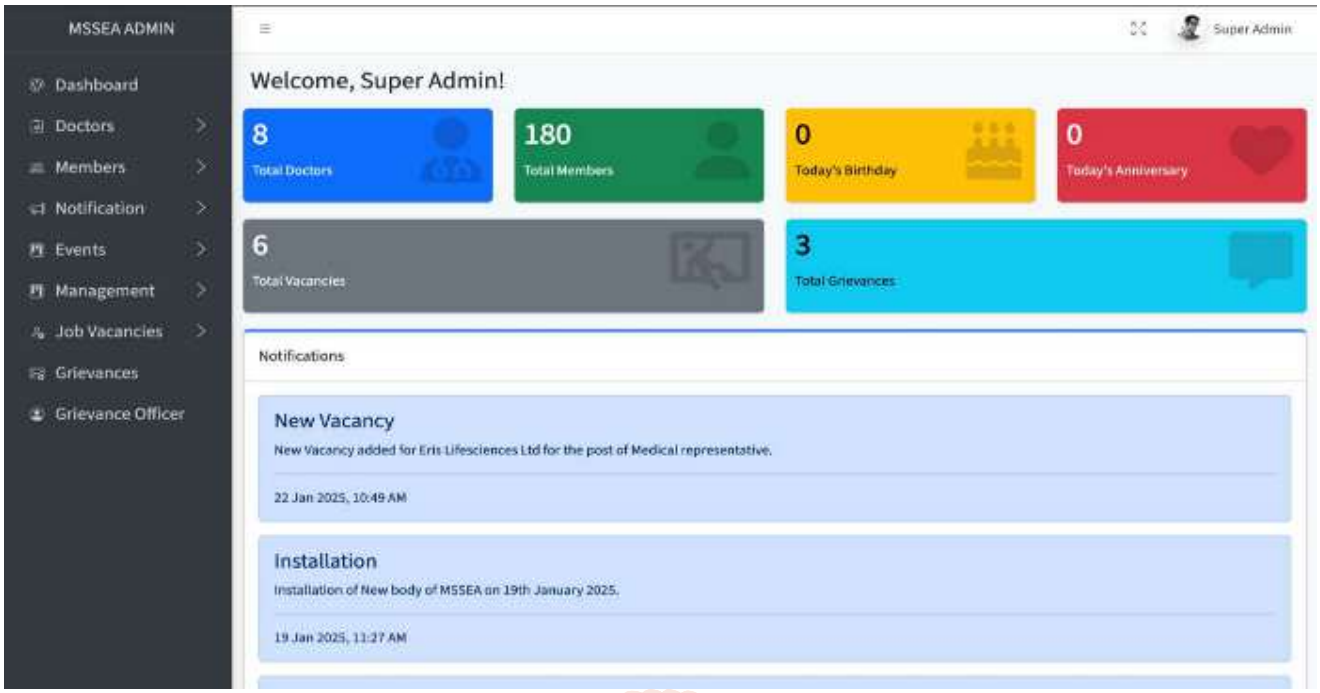

Fig.3 dashboard

V. RESULTS AND DISCUSSION

The Doctor Consultation App was developed and tested successfully, with major features such as:
User Registration and Login
Doctor Availability and Scheduling
Real-Time Video Consultations
Digital Prescription Generation
Admin and Super Admin Panels

Major performance results are:

- App Uptime: 98.7% on a 3-month test period
- Average Load Time: 2.1 seconds
- Video Call Latency: Less than 1 second in stable networks
- User Satisfaction: 87% of beta testers indicated the app to be easy to use
- Effective Consultations: 95% of the booked appointments were completed without technical issue.

The use evidenced strong potential in enhancing healthcare access, particularly to remote or under-served users. Both patients and doctors liked its simple to use design and seamless consultation experience.

Takeaways:
Doctors appreciated the freedom to manage their calendar and see patient history prior to consultations.
Patients enjoyed the advantage of time-saving, electronic prescription, and ease of choosing physicians by specialty and rating.
Admin tools provided efficient ways to monitor user activity and resolve issues in a timely fashion.
Super Admin features provided more sophisticated control over system-wide settings and monitoring of data, with better governance.

Some issues, however:
Internet connectivity issues had an effect on consultation quality in some rural locations.
Some users, especially older patients, needed help to use the video call interface.

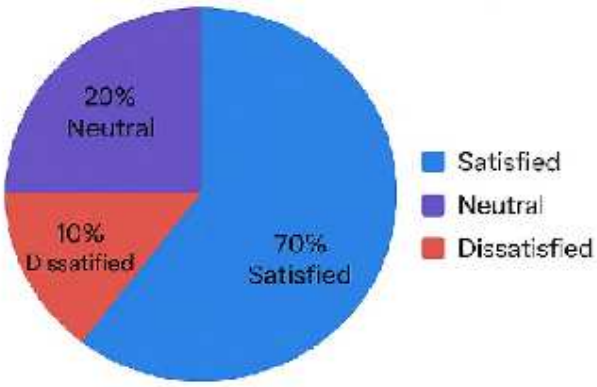

Fig 7: Pie Graph

The pie chart illustrates the user satisfaction levels for the Doctor Consultation App based on feedback from beta testers:

😊 Satisfied – 70%

A significant portion were generally happy with the app but suggested minor improvements.

😐 Neutral – 20%

These users had an average experience, likely due to technical or connectivity issues.

❌ Dissatisfied – 10%

A small minority faced usability challenges or bugs

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ISSN: 2456-6470